

IN THE SPECIFICATION:

Please amend the second and third full paragraphs on page 1 as follows:

The following technologies are known as those aimed at reducing fatigue by changing the sitting posture of a person sitting for a long time. First, a technology to change a sitting posture through changing a fixed position of a lumber lumbar support provided on a vehicle seat, such as Patent Document 1 (Japanese Patent Application Laid-open No. Sho 64-44355).

Second, a technology to change the angle of the back (vicinity of the lumber lumbar vertebra) and the femur (vicinity of the pelvis) of a seated person at the same angle while fixing the angle (positional relation) between the back and the femur through changing the supporting face angle of the seat cushion and the seat back, such as Patent Document 2 (Japanese Patent Application Laid-open No. Hei 4-224709).

Please amend the second full paragraph on page 2 as follows:

However, all of the technologies disclosed in the Patent Documents 1 to 3 are [[a]] technologies applied to an ordinary urethane seat structured by placing an urethane material with a prescribed thickness on a seat spring (seat back spring, seat cushion spring). Accordingly, changing a sitting posture is to force a lumber lumbar support, a side support, a front lifter, a rear lifter, a reclining device, etc., to move. When only the lumber lumbar support or the side support is forced to move, a stimulus is leaned to a local area. This kind of unbalanced stimulus is effective at restoring awakeness rather than reducing fatigue, and when the local stimulus like this is maintained during a long period of driving, the feeling of fatigue is rather enhanced. Accordingly, Patent Document 1 copes with this disadvantage by forcing the movement of a lumber lumbar support only when a prescribed length of elapsed time is detected.

Please amend the paragraph extending from page 2 to page 3 as follows:

In a structure to change a supporting face angle using a front lifter or a rear lifter as in the Patent Document 2, ~~though~~ although no local stimulus like the above is not sensed, since angle change of a seat cushion or seat back is performed with an ordinary urethane seat, it is necessary to force not only a cushioning member (urethane) but also a cushion frame and a seat frame to move. The change of the supporting face angle is characterized by changing the supporting face angle while restraining deviation of the angle between the pelvis and the lumbar vertebra. Therefore, when the supporting face angle is changed, the angles of the back (vicinity of the lumbar vertebra) and the femur (vicinity of the pelvis) of the seated person to the horizontal surface also change, and no change occurs in the sitting posture itself. In other words, in the case of sitting with an extended back or in the case of sitting with round shoulders, the posture is kept as it is, and only the angles of the back and the femur to the horizontal surface change at the same angle. Therefore, in the technology described in the Patent Document 2, the sitting posture is substantially fixed, and a significant fatigue reduction effect cannot be expected.

Please amend the first full paragraph on page 3 as follows:

On the other hand, the in Patent Document 4 ~~takes it a~~ , there is a description of a problem that with a mechanism to operate depending on a sitting period or to operate periodically, a seated person is forced to change a posture even when the seated person does not want to do it, which makes the seated person feel unpleasant. The Patent Document 4 is characterized by that when a seated person shows a body movement, the mechanism operates in a direction to promote the body movement. Body movement of the seated person's own accord is often seen when the feeling of fatigue or the like is elevated, and is excellent in view of effectively performing fatigue reduction. However, fatigue is naturally accumulated during no spontaneous body movement of a seated person. Therefore, it is preferable to have a structure possible to induce a posture change

when a feeling of fatigue is raised, and at the same time possible to reduce accumulation of fatigue even when such a conscious fatigue feeling is not sensed, and possible to perform a minute posture change in a level that the seated person does not feel unpleasant.

Please amend the first full paragraph on page 5 as follows:

That is, an invention described in ~~claim 1~~ herein provides a seat structure including a seat cushion having a cushioning member for a seat cushion stretched across a cushion frame, and a seat back having a cushioning member for a seat back stretched across a back frame, including:

at least one of a supporting pressure adjusting means for the seat cushion for changing a supporting pressure of the cushioning member for the seat cushion and a supporting pressure adjusting means for the seat back for changing a supporting pressure of the cushioning member for the seat back,

in which the supporting pressure adjusting means for the seat cushion and the supporting pressure adjusting means for the seat back include:

a cloth spring provided on the back of the cushioning member for the seat cushion or the cushioning member for the seat back respectively and stretched across the cushion frame or the back frame; and

a cloth spring adjusting member to adjust tension of the cloth spring,

in which the cloth spring adjusting member adjusts the tension of the cloth spring to change the supporting pressure of the cushioning member for the seat cushion stretched across the cushion frame or the supporting pressure of the cushioning member for the seat back stretched across the back frame.

Please amend the paragraphs extending from the top of page 6 to the top of page 9 as follows:

~~An invention described in claim 2 provides the seat structure according to claim 1,~~  
~~in which~~ In one embodiment of the invention both of the supporting pressure adjusting means for the seat cushion and the supporting pressure adjusting means for the seat back are provided.

~~An invention described in claim 3 provides the seat structure according to claims 1 or 2, in which~~ In one embodiment of the invention the cushioning member for the seat cushion stretched across the cushion frame and the cushioning member for the seat back stretched across the back frame are a solid knitted fabric knitted by reciprocating connecting yarn between a pair of ground knitted fabrics positioned at a prescribed distance or a stacked body of a solid knitted fabric and a urethane member.

~~An invention described in claim 4~~ Another embodiment of the invention provides the seat structure according to any one from claims 1 to 3,

in which one end of the cloth spring composing the supporting pressure adjusting means for the seat cushion is disposed on the front of the cushion frame along the width direction and engaged with a movable frame pivotable in front and behind, and the other end is connected to the rear of the cushion frame, and

in which the cloth spring adjusting member is structured such that it can pivot the movable frame in front and behind, and at least a portion of the cushioning member for the seat cushion is displaced in a direction protruding upward by pivoting the movable frame forward in the seated state to raise the supporting pressure.

~~An invention described in claim 5~~ Another embodiment of the invention provides the seat structure according to any one from claims 1 to 3, in which one end of the cloth spring provided on the back of the cushioning member for the seat back is disposed at the

upper portion of the back frame along the width direction, and engaged with a movable frame pivotable in front and behind, and the other end of the cloth spring is connected to the lower portion of the back frame, and both side ends of the cloth spring are connected to side frames protruding more to the front of the upper portion of the back frame via a spring member, and biased in the direction pushed forward in the normal state by the spring member, and

in which the cloth spring adjusting member is structured such that it can pivot the movable frame in front and behind, and at least a portion of the cushioning member for the seat back is displaced in a direction protruding forward by pivoting the movable frame forward in the seated state to raise the supporting pressure.

~~An invention described in claim 6~~ Another embodiment of the invention provides the seat structure ~~according to claim 4 or 5~~, in which the respective cloth spring adjusting members include: a motor; and a transmitting member provided between the motor and the movable frame, transmitting the drive of the motor to the movable frame, and pivoting the movable frame in front and behind.

~~An invention described in claim 7~~ Another embodiment of the invention provides the seat structure ~~according to any one from claims 1 to 4 and claim 6~~, in which a displacement amount in front of and behind the movable frame pivoted by the supporting pressure adjusting means for the seat cushion is controlled in the range of 5 to 15 mm in a straight distance.

~~An invention described in claim 8~~ Another embodiment of the invention provides the seat structure ~~according to any one from claims 1 to 3, and claims 5 and 6~~, in which a displacement amount in front of and behind the movable frame pivoted by the supporting pressure adjusting means for the seat back is controlled in the range of 10 to 20 mm in a straight distance.

~~An invention described in claim 9~~ Another embodiment of the invention provides the seat structure ~~according to any one from claims 1 to 8~~, in which the respective spring adjusting members composing the supporting pressure adjusting means for the seat cushion or the supporting pressure adjusting means for the seat back are controlled to operate at prescribed time intervals respectively.

~~An invention described in claim 10~~ Another embodiment of the invention provides the seat structure ~~according to claim 9~~, in which the respective cloth spring adjusting members are controlled to operate at every prescribed time interval, during a prescribed operating period of time, and at a prescribed cycle respectively.

~~An invention described in claim 11~~ Another embodiment of the invention provides the seat structure ~~according to any one from claims 1 to 10~~, in which the seat structure is structured to provide a sitting state determining mechanism to determine the state of at least one element out of the degree of fatigue and the degree of awakeness to perform drive controlling of at least one of the supporting pressure adjusting means for the seat cushion and the supporting pressure adjusting means for the seat back according to an output signal from the sitting state determining mechanism.

~~An invention described in claim 12~~ Another embodiment of the invention provides the seat structure ~~according to any one from claims 1 to 11~~, further including a stimulus imparting means for enhancing the degree of awakeness of a seated person.

~~An invention described in claim 13~~ Another embodiment of the invention provides the seat structure ~~according to claim 12~~,

in which the seat structure is structured to provide a sitting state determining mechanism to determine the state of at least one element out of the degree of fatigue and the degree of awakeness, and

in which the stimulus imparting means works when at least one of the degree of fatigue and the degree of awakeness determined by the sitting state determining mechanism gets to prescribed degrees of fatigue or awakeness. \*

~~An invention described in claim 14~~ Another embodiment of the invention provides the seat structure ~~according to claims 12 or 13~~, in which the stimulus imparting means is a movable lumbar support mechanism provided movably at least in front and behind in the vicinity corresponding to the lumbar vertebra in the seat back.

Please amend the paragraph extending from page 14 to the top of page 15 as follows:

In the present embodiment, the cloth spring (31) has an upper cloth spring (31a) stretched across a suitable frame disposed in the rear end of the seat cushion and the front end fixed frame (13), and a lower cloth spring (31b) stretched across the rear end supporting frame (14) and the movable frame (12). The end at the rear of the upper cloth spring (31a) is hung on the torsion bar (11) via a plurality of metal coil springs (32), thereby ensuring stroke during seated. Although the coil springs (32) are directly engaged with the torsion bar (11) in FIG. 2, it is also adoptable, for instance, to dispose the torsion bar (11) by inserting it in a pipe-shaped frame so that the coil springs (32) are engaged with the pipe-shaped frame, not directly engaged with the torsion bar (11). It is also possible to engage the coil springs with other arbitrary frame of the cushion frame (10). The lower cloth spring (31b) is connected to the movable frame (12) on the front side and to the rear end supporting frame (14) on the rear side (rear end), and “a cloth spring to be adjusted in tension” defined by ~~CLAIMS~~ herein corresponds to the lower cloth spring (31b) in the seat cushion of the present embodiment. Since the lower cloth spring (31b) is provided in this manner, elastic force of the torsion bar (11) functions via the L-shaped arms (15) supporting the rear end supporting frame (14). It is structured that tension of the lower cloth spring (31b) is adjusted by a cloth spring adjusting member (50) which will be described later, and “a supporting pressure adjusting means”

defined by ~~CLAIMS herein~~ is structured with the lower cloth spring (31b) and the cloth spring adjusting member (50) in the present embodiment. Note that though the lower cloth spring (31b) is elastically supported to the cushion frame (10) by the torsion bar (11) in the present embodiment, it is possible to support the lower cloth spring (31b) using coil springs instead of or together with the torsion bar (11).

Please amend the second full paragraph on page 15 as follows:

Although in the present embodiment, the cloth spring (31) is constituted with two sheets of the upper cloth spring (31a) and the lower cloth spring (31b), it is possible to constitute it with one sheet of the lower cloth spring (31b) without using the upper cloth spring (31a) so far as the supporting pressure of the cushioning member (30) for the seat cushion can be changed. However, in order to ensure the stroke ~~during~~ while seated and reduce a feeling of bottom touch, it is preferable to dispose two sheets in this manner.

Please amend the paragraph that extends from page 16, line 10, to page 17, line 18, as follows:

As shown in FIGs. 1, 2 and 4, the cloth spring adjusting member (50) includes a motor (52) to be a power source, an advancing and retreating gear (54) to advance and retreat forward and backward of the seat cushion with the rotation of the motor (52), and a link (55) pivotally supported by a link pin (55a) at the forward side end of the advancing and retreating gear (54), and at the same time, holding the end of the movable frame (12). Traveling in the advancing and retreating direction of the advancing and retreating gear (54) serves to change a rest position of the movable frame (12) with pivoting of the link (55) around the link pin (55a). As a result, the position of the rear end supporting frame (14) is changed, and the tension of the lower cloth spring (31b) is changed. This is because ~~that the~~ both ends of the rear end supporting frame (14) are fixed to the L-shaped arms (15), which are able to pivot around the positions of both ends of the torsion bar (11). As a result, due to the elastic force of the torsion bar (11), for



instance, the advancing and retreating gear (54) retreats, so that the movable frame (12) pivots forward. Then, the lower cloth spring (31b) is wound in forward, making the tension strong, so that the lower cloth spring (31b) moves from the position depicted by a solid line to the position depicted by a broken line in FIGs. 4 and 6, especially the vicinity corresponding to the buttocks portion is raised, which makes the supporting pressure of the cushioning member (30) for the seat cushion is raised via the upper cloth spring (31a). Under such conditions, when the advancing and retreating gear (54) advances, and the movable frame (12) pivots in the reverse direction, the tension of the lower cloth spring (31b) is relaxed, and the lower cloth spring (31b) descends from the broken line position to the solid line position in reverse to the direction described above. Accordingly, as shown in FIG. 6, in a seat structure provided with two sheets of cloth springs (31a, 31b), the supporting pressure changes depending on looseness or strain of the tension in a stretching direction (longitudinal direction) of the lower cloth spring (31b) disposed underneath. Therefore, since the easiness of bending during seated is changed, the position of the femur (61) of a seated person (60) changes (the state that the supporting pressure is raised because the cushioning member (30) for the seat cushion is pressed by the cloth springs (31a, 31b) is expressed by a broken line, and the state that the supporting pressure is lowered is expressed by a solid line).

Please amend the first full paragraph on page 18 as follows:

In the present embodiment, the “supporting pressure adjusting means for the seat back” defined by CLAIMS herein includes the cloth spring (41) and the cloth spring adjusting member (500). Although the “side frame” defined by CLAIMS herein includes the side frame main bodies (23) and the spring supporting frames (23a), it is possible to form the side frame with only the side frame main bodies (23) without using the exclusive spring supporting frames (23a) like in the present embodiment so far as a portion protruding forward to the upper portion of the back frame (20) exists.

Please amend the paragraph that extends from page 18, line 26, to page 20, line 6, as follows:

The horizontal frame (21) is connected to the ends of the shorter side portion positioned on the upper portion of the L-shaped arms (15) supported by the torsion bar (11). As described above, the movable frame (12) disposed toward the front of the seat cushion moves in front and behind by the cloth spring adjusting member (50) for the seat cushion. Through this movement, the rear end supporting frame (14) supported by the lower end portions of the longer side portions of the L-shaped arms (15) also pivots in front and behind. As a result, the horizontal frame (21) connected to the shorter side portions positioned on the upper portions of the L-shaped arms (15) pivot vertically. However, since the horizontal arm (21) pivots around the torsion bar (11) positioned at the intersections of the longer side portions and the shorter side portions of the L-shaped arms (15), when pivoting downward, it moves forward a little, and when pivoting upward, it moves backward a little. Accordingly, especially the vicinity of the lower portion of the cloth spring (41) for the seat back operates together with the movement of the lower cloth spring (31b) for the seat cushion, and the horizontal frame (21) follows in front and behind though the amount of movement is small. By structuring the cloth spring (41) to follow the movement of the lower cloth spring (31b) as above, supportability in the vicinity from the buttocks to the waist is enhanced when compared with the case of not following, and vibration absorbability is especially enhanced. Needless to say, by giving other vibration absorbing measures, for instance, it is possible to fixedly connect the horizontal frame (21) [[to]] between lower portions of the side frame main bodies (23) of the back frame (20), not to the L-shaped arms (15) of the horizontal frame (21). The reason is that since the amount of pushing out (amount of horizontal movement) by the lower portion of the cloth spring (41) is slight even when the horizontal frame (21) connects to the L-shaped arms (15) as described above, it would not significantly affect the supporting pressure adjusting function of the cloth spring (41) by the cloth spring adjusting member (500). It is preferable to structure the horizontal

frame (21) so as to connect to the L-shaped arms (15) as in the present embodiment, because it can execute also the vibration absorbing measure as described above.

Please amend the first full paragraph on page 20 as follows:

The upper portion of the cloth spring (41) connects, via the coil springs (42) to the movable frame (22) disposed to be bulging upward and pivotable. The device to pivot this movable frame (22) ~~[[in]]~~ foward or backward is the cloth spring adjusting member (500) for the seat back.

Please amend the first full paragraph on page 22 as follows:

The seat structure shown in the above embodiment is fixed on a mono-axial vibration tester, a testee ~~is sat~~ was allowed to sit, and the ratio of bloodstreams are evaluated for the case of operating the supporting pressure adjusting means for the seat cushion and the supporting pressure adjusting means for the seat back (under control) and for the case of not operating (no control). The test was carried out by setting vibration frequencies of the mono-axial vibration tester at 4 Hz, 5 Hz, 6 Hz, and 10 Hz, and by vibrating all cases at the amplitude between the upper peak and the lower peak: 2 mm (one side amplitude: 1 mm).

Please amend the paragraph that extends from the bottom of page 22 to the top of page 23 as follows:

For the case of “under control”, the amount of horizontal movement of the movable frame (12) owing to the cloth spring adjusting member (50) of the supporting pressure adjusting means for the seat cushion was set to be 20 mm in a straight distance, and the amount of pivoting in front of and behind the movable frame (22) owing to the cloth spring adjusting member (500) of the supporting pressure adjusting means for seat back was set to be 30 mm in a straight distance, and the cloth spring adjusting means were operated ~~[[ ]]~~ continuously. During operation time, the movable frame (12) was set

to operate at a cycle of 0.16 Hz for the seat cushion, and the movable frame (22) was set to operate at a cycle of 0.10 Hz for the seat back.